Claims

1. A data acquisition and display system comprising

at least one data acquisition device, operable to acquire field data of a presently viewed field having field location data, from a scannable field of interest using each of at least a first and a second data acquisition method,

a field data storage device for storing said field data together with said corresponding field location data, and

a field data display device being operable to display simultaneously field data of said presently viewed field, acquired respectively by said first and said second data acquisition method, said field data being matchable by said field location data.

2. A device according to claim 1, wherein said field data is image data.

3. A device according to claim 1, wherein said scannable field of interest is substantially larger than said presently viewed field such that a plurality of viewed fields are required to cover said scannable field of interest.

4. A device according to claim 2, wherein said scannable field of interest is substantially larger than said presently viewed field such that a plurality of viewed fields are required to cover said scannable field of interest.

5. A device according to claim 4, wherein said field data storage device is operable to store image data of said entire scannable field of interest acquired according to said first data aqcuisition method.

6. A device according to claim 5, wherein said data acquisition device is operable to acquire image data of a presently viewed field of view using said second data acquisition method and said field data display device is operable to display said image data in conjunction with a corresponding image acquired using said first data acquisition method.

7. A device according to claim 1, wherein said data acquisition device is a microscope.

8. A device according to claim 7, wherein said data acquisition device is a microscope and wherein said microscope microscope is any one of a group comprising a light microscope, a scanning electron microscope and a transmission electron microscope.

9. A device according to claim 1, wherein said data acquisition device is a telescope.

10. A device according to claim 9, wherein said telescope is any one of a group comprising a refracting telescope, a reflecting telescope, an infra-red telescope, a radio telescope, a gamma-ray telescope, and an x-ray telescope.

11. A device according to claim 1, wherein said data acquisition device is terrestrially based.

12. A device according to claim 1, wherein said data acquisition device is suitable for being airborne.

13. A device according to claim 1, wherein said data acquisition device is suitable for being spaceborne.

14. An image data storage device storing image data of a plurality of parts of a scannable field of interest together with location data of said part within said scannable field of interest.

15. An acquisition and display co-ordinator for co-ordinating between at least one image data acquisition device, operable for acquiring image data according to at least two data acquisition methods, and a data display device, said co-ordinator being operable to store image data obtained using a first data acquisition method together with location data of said image within a scannable field of interest, and to display said image simultaneously with an image having similar location data acquired using a second data acquisition method.

16. An acquisition and display co-ordinator according to claim 15, wherein said scannable field of interest is substantially larger than a presently viewed field such that a plurality of viewed fields are required to cover said scannable field of interest.

17. An acquisition and display co-ordinator according to claim 16, operable to store image data of said entire scannable field of interest acquired according to said first data acquisition method.

18. An acquisition and display co-ordinator according to claim 17, wherein said data acquisition device is operable to acquire image data of a presently viewed field of view using said second data acquisition method and said field data display device is operable to display said image data in real time

in conjunction with said corresponding image acquired using said first data acquisition method.

19. An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is a microscope.

20. An acquisition and display co-ordinator according to claim 19, wherein said microscope is any one of a group comprising a light microscope, a scanning electron microscope and a transmission electron microscope.

21. An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is any one of a group comprising a thermal imager, an image intensifier, a telescope, a camera, and a radar.

22. An acquisition and display co-ordinator according to claim 21, wherein said telescope is any one of a group comprising a refracting telescope, a reflecting telescope, an infra-red telescope, a radio telescope, a gamma-ray telescope, and an x-ray telescope

23. An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is terrestrially based.

24. An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is suitable for being airborne.

25. An acquisition and display co-ordinator according to claim 15, wherein said data acquisition device is suitable for being spaceborne.

26. An acquisition and display co-ordinator according to claim 15 which is operable to position said data acquisition device.

27. An acquisition and display co-ordinator according to claim 15, which is operable to monitor positioning of said data acquisition device.

28. An acquisition and display co-ordinator according to claim 15, wherein said location data additionally comprises focussing data for defining a focal plane.

29. An acquisition and display co-ordinator according to claim 15, comprising software on computer readable media for installation on a computer operatively associated with said data acquisition device.

30. An acquisition and display co-ordinating method comprising the steps of:

acquiring first data of a field of view within a field of interest being scanned using a first data acquisition method,

storing said data together with field location data of said field of view within said field of interest being scanned,

subsequently acquiring second data of a corresponding field of view within said field of interest being scanned using a second data acquisition method, and

retrieving said first data using said field location data and simultaneously displaying said first data and said second data.

31. An acquisition and display co-ordinating method according to claim 30, wherein said first data and said second data are first and second images respectively.

32. An acquisition and display co-ordinating method according to claim 31, wherein said simultaneously displayed first and second images are superimposed one on the other.

33. An acquisition and display co-ordinating method according to claim 31 wherein said simultaneously displayed images are displayed side by side.

34. An acquisition and display co-ordinating method according to claim 31, wherein said data is acquired using any one of a group comprising a thermal imager, a microscope, an image intensifier, a telescope, a camera, and a radar.

35. An acquisition and display co-ordinating method according to claim 34, wherein said microscope is any one of a group comprising a light microscope, a scanning electron microscope and a transmission electron microscope.

36. An acquisition and display co-ordinating method according to claim 34, wherein said telescope is any one of a group comprising a refracting telescope, a reflecting telescope, an infra-red telescope, a radio telescope, a gamma-ray telescope, and an x-ray telescope.

37. An acquisition and display co-ordinating method according to claim 34, wherein said data acquisition device is one of group comprising a

telescope and a thermal imaging device, operable to gather data at a plurality of different wavelengths and wherein each data acquisition method comprises gathering data at a different one of said wavelengths.

38. A method of display of data acquired in at least two data acquisition methods from a scannable field of interest comprising:

scanning the field of interest using a first data acquisition method,

forming a plurality of first images of said field of interest,

indexing said images,

storing said indexed images,

scanning the field of interest using a second data acquisition method to form at least one second image corresponding to one of said first images,

determining from the indices which of said first images corresponds to said second image,

simultaneously displaying said second image and said corresponding first image.

39. A method of display of data acquired in at least two data acquisition methods from a scannable field of interest comprising:

scanning the field of interest using a first data acquisition method,

forming a plurality of first images of said field of interest,

indexing said images,

storing said indexed images,

scanning the field of interest using a second data acquisition method to form at least one second image corresponding to an index of a predetermined one of said first images, and

simultaneously displaying said second image and said corresponding first image.

40. A method of constructing an image gathering and display co-ordination system, the method comprising,

providing an image gathering device operable to gather image data, using a plurality of image gathering methods, according to externally provided positioning commands,

providing an image storing device and connecting said image storage device to said data gathering device such that it is able to store data gathered from said image gathering device in association with said externally provided positioning commands corresponding to said data, and

providing an image display device for simultaneously displaying a plurality of images gathered using different image gathering methods but with identical positioning commands.

41. A method according to claim 40, wherein said image display device is operable to display at least one image from said storage device together with one image direct from said image gathering device.

42. A control system for controlling an image data acquisition device, operable for acquiring image data according to at least two data acquisition methods, and a data display device, said control system being operable to store image data obtained using a first data acquisition method together with location data of said image within a scannable field of interest, and to display said image simultaneously with an image having similar location data acquired using a second data acquisition method.

43. A control system for controlling an imaging device and a display device together to permit a user to move over a field of interest with said imaging device to image the field in parts using one imaging method, and to display a current part on said display device whilst simultaneously and automatically displaying a second image of a same part of the field previously obtained using a different imaging method, the second image being automatically replaced as the imaging device moves to a different part of the field of interest.

44. A control system according to claim 43, wherein said imaging device is operable to image said field of interest using at least three imaging methods and wherein said display device is operable to display simultaneously all images of a part of said field of interest currently being viewed.

45. A data acquisition and display system comprising

at least one data acquisition device, operable to scan a field of interest and acquire field data of parts having field location data, from said scannable field of interest using each of at least a first and a second data acquisition method,

a field data storage device for storing said field data together with said corresponding field location data, and

a field data display device being operable to display simultaneously field data, acquired respectively by said first and said second data acquisition method, said field data being matchable by said field location data.

46. A method of applying an intrinsic co-ordinate system to a mount-and-object system, the method comprising:

identifying a plurality of edge points in said mount and object system using automatic image processing,

interpolating straight lines between said edge points,

identifying two perpendicular straight lines from said interpolated straight lines,

identifying a meeting point between said perpendicular straight lines, and

defining said meeting point as an origin for said intrinsic co-ordinate system.

47. A method according to claim 46, wherein the mount-and-object system has a substantially rectangular outline.

48. A method of imaging a mount-and-object system using an internal co-ordinate system, comprising the steps of:

identifying a plurality of edge points in said mount and object system using automatic image processing,

interpolating straight lines between said edge points,

identifying two perpendicular straight lines from said interpolated straight lines,

identifying a meeting point between said perpendicular straight lines,

defining said meeting point as an origin for said intrinsic co-ordinate system,

making a plurality of images at different locations on said mount-and-object system, and

indexing said images based on its respective location expressed in terms of said intrinsic co-ordinate system.

49. A method according to claim 48 wherein the mount-and-object system is substantially rectangular.

50. A method according to claim 48, comprising a further step of fine registration between two series of said images of the same mount-and-object system, comprising the steps of identifying an identical feature on each series of images,

placing a cross-hair on said identical feature on each series of said images, and

defining the center of the cross hair as being the same location on each set of images so as to modify the intrinsic co-ordinate system.